



**V 15 *Haemaphysalis concinna*: urbanization tendency and geographical spread in eastern Brandenburg (Germany)**

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The relict tick, *Haemaphysalis concinna* has been reported focally from northern France, Germany, and Poland and eastwards to China and Japan. In Germany, its relict-type occurrence has been reported from Hannover, Lueneburg, and southern Hesse areas. In the 1990s, new foci located in the Leipzig area, which simultaneously mark the yet known northernmost distribution range within Germany, have been described. This species usually inhabits temperate broad-leaved and mixed forests where the environment is relatively unaltered.

In the Brieskow-Finkenheerd region, continuously carried out tick surveillance by dragging has been implemented since 1999 in defined habitats and locations. Until 2008, exclusively *Ixodes ricinus* ticks were identified. The first information on a *H. concinna* occurrence took place during January/February 2007, when 2 nymphs, locally collected from a cat, have been delivered to the institute for further species identification. In 2009, 2 males were handed over by a hunter who had his hunting ground nearby Brieskow-Finkenheerd village.

Subsequently to these unusual findings, a study has been initiated in 2010 aiming at (i) identification of *H. concinna* populations in urban, periurban, and/or sylvatic ecotopes, including their local habitat affinity in the Brieskow-Finkenheerd area, (ii) analyzation of population density and characteristics as well as regional seasonal activity, and (iii) identification of habitat-specific primary blood hosts.

One *H. concinna* focus could be identified in May 2010 in a periurban area of approximately 2 km in diameter west of Brieskow-Finkenheerd village. One of the identified microfoci within that area, situated only 100 m away from highly-frequented buildings of an industrial plant, revealed the highest yet measured population density of approximately 1000 *H. concinna* ticks per 100 m<sup>2</sup> in June 2010. The stadium- and sex-specific distribution pattern of the population analyzed strongly indicates the presence of a natural long-term infestation rather than that of a newly introduced hard tick species. The Crataego-Pruneta biotope revealing the highest population densities is characterized by midland hawthorn (*Crataegus laevigata*), blackthorn (*Prunus spinosa*), and common sea-buckthorn (*Hippophae rhamnoides*) scrubs on sandy, arid soil on an abandoned, post-mining industrial, renatured area which does not meet the species-specific habitat requirements and preferences reported so far. Areas infested by *I. ricinus* were never found simultaneously infested by *H. concinna*.

Interestingly, *H. concinna* was found active even under exposure to direct sun light exposure at temperatures up to 30°C. This observation initiated further detailed investigations on the species-specific tolerance against heat and low relative humidity (r.h.). The maximum survival time of larval *H. concinna*, considered as the most sensitive stadium, was determined to be 24 h at 39°C and 30% r.h. in the open, and 73 h at 27°C and 35% r.h., respectively.

In conclusion, *H. concinna* may show both, an increased urbanization tendency thus raising human/pet–tick contact, and a spread into new habitat conditions allowing extremely high population densities to develop.